

**Subpart AA—Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974, and On or Before August 17, 1983**

**§ 60.270 Applicability and designation of affected facility.**

(a) The provisions of this subpart are applicable to the following affected facilities in steel plants that produce carbon, alloy, or specialty steels: electric arc furnaces and dust-handling systems.

(b) The provisions of this subpart apply to each affected facility identified in paragraph (a) of this section that commenced construction, modification, or reconstruction after October 21, 1974, and on or before August 17, 1983.

[49 FR 43843, Oct. 31, 1984]

**§ 60.271 Definitions.**

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) *Electric arc furnace (EAF)* means a furnace that produces molten steel and heats the charge materials with electric arcs from carbon electrodes. Furnaces that continuously feed direct-reduced iron ore pellets as the primary source of iron are not affected facilities within the scope of this definition.

(b) *Dust-handling equipment* means any equipment used to handle particulate matter collected by the control device and located at or near the control device for an EAF subject to this subpart.

(c) *Control device* means the air pollution control equipment used to remove particulate matter generated by an EAF(s) from the effluent gas stream.

(d) *Capture system* means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture or transport particulate matter generated by an EAF to the air pollution control device.

(e) *Charge* means the addition of iron and steel scrap or other materials into the top of an electric arc furnace.

(f) *Charging period* means the time period commencing at the moment an

EAF starts to open and ending either three minutes after the EAF roof is returned to its closed position or six minutes after commencement of opening of the roof, whichever is longer.

(g) *Tap* means the pouring of molten steel from an EAF.

(h) *Tapping period* means the time period commencing at the moment an EAF begins to pour molten steel and ending either three minutes after steel ceases to flow from an EAF, or six minutes after steel begins to flow, whichever is longer.

(i) *Meltdown and refining* means that phase of the steel production cycle when charge material is melted and undesirable elements are removed from the metal.

(j) *Meltdown and refining period* means the time period commencing at the termination of the initial charging period and ending at the initiation of the tapping period, excluding any intermediate charging periods and times when power to the EAF is off.

(k) *Shop opacity* means the arithmetic average of 24 or more opacity observations of emissions from the shop taken in accordance with Method 9 of appendix A of this part for the applicable time periods.

(l) *Heat time* means the period commencing when scrap is charged to an empty EAF and terminating when the EAF tap is completed.

(m) *Shop* means the building which houses one or more EAF's.

(n) *Direct shell evacuation system* means any system that maintains a negative pressure within the EAF above the slag or metal and ducts these emissions to the control device.

[40 FR 43852, Sept. 23, 1975, as amended at 49 FR 43843, Oct. 31, 1984; 64 FR 10109, Mar. 2, 1999]

**§ 60.272 Standard for particulate matter.**

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from an electric arc furnace any gases which:

(1) Exit from a control device and contain particulate matter in excess of 12 mg/dscm (0.0052 gr/dscf).

(2) Exit from a control device and exhibit three percent opacity or greater.

(3) Exit from a shop and, due solely to operations of any EAF(s), exhibit 6 percent opacity or greater except:

(i) Shop opacity less than 20 percent may occur during charging periods.

(ii) Shop opacity less than 40 percent may occur during tapping periods.

(iii) The shop opacity standards under paragraph (a)(3) of this section shall apply only during periods when the monitoring parameter limits specified in § 60.274(b) are being established according to § 60.274(c) and (g), unless the owner or operator elects to perform daily shop opacity observations in lieu of furnace static pressure monitoring as provided for under § 60.273(d).

(iv) Where the capture system is operated such that the roof of the shop is closed during the charge and the tap, and emissions to the atmosphere are prevented until the roof is opened after completion of the charge or tap, the shop opacity standards under paragraph (a)(3) of this section shall apply when the roof is opened and shall continue to apply for the length of time defined by the charging and/or tapping periods.

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from dust-handling equipment any gases which exhibit 10 percent opacity or greater.

[40 FR 43852, Sept. 23, 1975, as amended at 49 FR 43843, Oct. 31, 1984; 64 FR 10109, Mar. 2, 1999]

#### **§ 60.273 Emission monitoring.**

(a) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this subpart.

(b) For the purpose of reports under § 60.7(c), all six-minute periods during which the average opacity is three per-

cent or greater shall indicate a period of excess emission, and shall be reported to the Administrator semi-annually.

(c) A continuous monitoring system is not required on any modular, multiple-stack, negative-pressure or positive-pressure fabric filter if observations of the opacity of the visible emissions from the control device are performed by a certified visible emission observer as follows: Visible emission observations shall be conducted at least once per day when the furnace is operating in the melting and refining period. These observations shall be taken in accordance with Method 9, and, for at least three 6-minute periods, the opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emission, only one set of three 6-minute observations will be required. In this case, Method 9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in § 60.272(a) of this subpart.

(d) A furnace static pressure monitoring device is not required on any EAF equipped with a DEC system if observations of shop opacity are performed by a certified visible emission observer as follows: Shop opacity observations shall be conducted at least once per day when the furnace is operating in the meltdown and refining period. Shop opacity shall be determined as the arithmetic average of 24 or more consecutive 15-second opacity observations of emissions from the shop taken in accordance with Method 9. Shop opacity shall be recorded for any point(s) where visible emissions are observed in proximity to an affected EAF. Where it is possible to determine that a number of visible emission sites relate to only one incident of visible emissions, only one observation of shop opacity will be required. In this case, the shop opacity observations must be made for the site of highest opacity that directly relates to the cause (or

location) of visible emissions observed during a single incident.

[40 FR 43852, Sept. 23, 1975, as amended at 49 FR 43843, Oct. 31, 1984; 54 FR 6672, Feb. 14, 1989; 64 FR 10109, Mar. 2, 1999]

**§ 60.274 Monitoring of operations.**

(a) The owner or operator subject to the provisions of this subpart shall maintain records daily of the following information:

- (1) Time and duration of each charge;
- (2) Time and duration of each tap;
- (3) All flow rate data obtained under paragraph (b) of this section, or equivalent obtained under paragraph (d) of this section; and
- (4) All pressure data obtained under paragraph (e) of this section.

(b) Except as provided under paragraph (d) of this section, the owner or operator subject to the provisions of this subpart shall check and record on a once-per-shift basis furnace static pressure (if a DEC system is in use, and a furnace static pressure gauge is installed according to paragraph (f) of this section) and either: check and record the control system fan motor amperes and damper positions on a once-per-shift basis; install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood; or install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the control device inlet and check and record damper positions on a once-per-shift basis. The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of  $\pm 10$  percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The Administrator may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to Methods 1 and 2 of appendix A of this part.

(c) When the owner or operator of an EAF is required to demonstrate compliance with the standards under § 60.272(a)(3) and at any other time the Administrator may require that (under section 114 of the Act, as amended) ei-

ther: the control system fan motor amperes and all damper positions; the volumetric flow rate through each separately ducted hood; or the volumetric flow rate at the control device inlet and all damper positions shall be determined during all periods in which a hood is operated for the purpose of capturing emissions from the EAF subject to paragraph (b)(1) or (b)(2) of this section. The owner or operator may petition the Administrator for reestablishment of these parameters whenever the owner or operator can demonstrate to the Administrator's satisfaction that the EAF operating conditions upon which the parameters were previously established are no longer applicable. The values of these parameters as determined during the most recent demonstration of compliance shall be maintained at the appropriate level for each applicable period. Operation at other than baseline values may be subject to the requirements of § 60.276(a).

(d) The owner or operator may petition the Administrator to approve any alternative method that will provide a continuous record of operation of each emission capture system.

(e) The owner or operator shall perform monthly operational status inspections of the equipment that is important to the performance of the total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection shall include observations of the physical appearance of the equipment (e.g., presence of hole in ductwork or hoods, flow constrictions caused by dents or accumulated dust in ductwork, and fan erosion). Any deficiencies shall be noted and proper maintenance performed.

(f) Except as provided for under § 60.273(d), where emissions during any phase of the heat time are controlled by use of a direct shell evacuation system, the owner or operator shall install, calibrate, and maintain a monitoring device that continuously records the pressure in the free space inside the EAF. The pressure shall be recorded as 15-minute integrated averages. The monitoring device may be installed in any appropriate location in the EAF or DEC duct prior to the introduction of ambient air such that reproducible results will be obtained. The pressure

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monitoring device shall have an accuracy of  $\pm 5$  mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(g) Except as provided for under § 60.273(d), when the owner or operator of an EAF is required to demonstrate compliance with the standard under § 60.272(a)(3) and at any other time the Administrator may require (under section 114 of the Act, as amended), the pressure in the free space inside the furnace shall be determined during the meltdown and refining period(s) using the monitoring device under paragraph (f) of this section. The owner or operator may petition the Administrator for reestablishment of the 15-minute integrated average pressure whenever the owner or operator can demonstrate to the Administrator's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure determined during the most recent demonstration of compliance shall be maintained at all times the EAF is operating in a meltdown and refining period. Operation at higher pressures may be considered by the Administrator to be unacceptable operation and maintenance of the affected facility.

(h) Where the capture system is designed and operated such that all emissions are captured and ducted to a control device, the owner or operator shall not be subject to the requirements of this section.

(i) During any performance test required under § 60.8, and for any report thereof required by § 60.275(c) of this subpart or to determine compliance with § 60.272(a)(3) of this subpart, the owner or operator shall monitor the following information for all heats covered by the test:

- (1) Charge weights and materials, and tap weights and materials;
- (2) Heat times, including start and stop times, and a log of process operation, including periods of no operation during testing and the pressure inside the furnace where direct-shell evacuation systems are used;
- (3) Control device operation log; and

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(4) Continuous monitor or Reference Method 9 data.

[40 FR 43852, Sept. 23, 1975, as amended at 49 FR 43843, Oct. 31, 1984; 64 FR 10110, Mar. 2, 1999]

**§ 60.275 Test methods and procedures.**

(a) During performance tests required in § 60.8, the owner or operator shall not add gaseous diluent to the effluent gas after the fabric in any pressurized fabric collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

(b) When emissions from any EAF(s) are combined with emissions from facilities not subject to the provisions of this subpart but controlled by a common capture system and control device, the owner or operator shall use either or both of the following procedures during a performance test (see also § 60.276(b)):

(1) Determine compliance using the combined emissions.

(2) Use a method that is acceptable to the Administrator and that compensates for the emissions from the facilities not subject to the provisions of this subpart.

(c) When emissions from any EAF(s) are combined with emissions from facilities not subject to the provisions of this subpart, the owner or operator shall use either or both of the following procedures to demonstrate compliance with § 60.272(a)(3):

(1) Determine compliance using the combined emissions.

(2) Shut down operation of facilities not subject to the provisions of this subpart during the performance test.

(d) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(e) The owner or operator shall determine compliance with the particulate matter standards in § 60.272 as follows:

(1) Method 5 shall be used for negative-pressure fabric filters and other types of control devices and Method 5D shall be used for positive-pressure fabric filters to determine the particular

matter concentration and, if applicable, the volumetric flow rate of the effluent gas. The sampling time and sample volume for each run shall be at least 4 hours and 4.5 dscm (160 dscf) and, when a single EAF is sampled, the sampling time shall include an integral number of heats.

(2) When more than one control device serves the EAF(s) being tested, the concentration of particulate matter shall be determined using the following equation:

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where:

$C_{st}$ =average concentration of particulate matter, mg/dscm (gr/dscf).

$C_{si}$ =concentration of particulate matter from control device "i", mg/dscm (gr/dscf).

$n$ =total number of control devices tested.

$Q_{sdi}$ =volumetric flow rate of stack gas from control device "i", dscm/hr (dscf/hr).

(3) Method 9 and the procedures of § 60.11 shall be used to determine opacity.

(4) To demonstrate compliance with § 60.272(a) (1), (2), and (3), the test runs shall be conducted concurrently, unless inclement weather interferes.

(f) To comply with § 60.274 (c), (f), (g), and (i), the owner or operator shall obtain the information in these paragraphs during the particulate matter runs.

(g) Where emissions from any EAF(s) are combined with emissions from facilities not subject to the provisions of this subpart but controlled by a common capture system and control device, the owner or operator may use any of the following procedures during a performance test:

(1) Base compliance on control of the combined emissions.

(2) Utilize a method acceptable to the Administrator which compensates for the emissions from the facilities not subject to the provisions of this subpart.

(3) Any combination of the criteria of paragraphs (g)(1) and (g)(2) of this section.

(h) Where emissions from any EAF(s) are combined with emissions from facilities not subject to the provisions of this subpart, the owner or operator

may use any of the following procedures for demonstrating compliance with § 60.272(a)(3):

(1) Base compliance on control of the combined emissions.

(2) Shut down operation of facilities not subject to the provisions of this subpart.

(3) Any combination of the criteria of paragraphs (h)(1) and (h)(2) of this section.

(i) Visible emissions observations of modular, multiple-stack, negative-pressure or positive-pressure fabric filters shall occur at least once per day of operation. The observations shall occur when the furnace is operating in the melting and refining period. These observations shall be taken in accordance with Method 9, and, for at least three 6-minute periods, the opacity shall be recorded for any point(s) where visible emissions are observed. Where it is possible to determine that a number of visible emission sites relate to only one incident of the visible emissions, only one set of three 6-minute observations will be required. In the case, Reference Method 9 observations must be made for the site of highest opacity that directly relates to the cause (or location) of visible emissions observed during a single incident. Records shall be maintained of any 6-minute average that is in excess of the emission limit specified in § 60.272(a) of this subpart.

(j) Unless the presence of inclement weather makes concurrent testing infeasible, the owner or operator shall conduct concurrently the performance tests required under § 60.8 to demonstrate compliance with § 60.272(a) (1), (2), and (3) of this subpart.

[40 FR 43852, Sept. 23, 1975, as amended at 49 FR 43844, Oct. 31, 1984; 54 FR 6672, Feb. 14, 1989; 54 FR 21344, May 17, 1989]

#### **§ 60.276 Recordkeeping and reporting requirements.**

(a) Operation at a furnace static pressure that exceeds the value established under § 60.274(f) and either operation of control system fan motor amperes at valves exceeding  $\pm 15$  percent of the value established under § 60.274(c) or operation at flow rates lower than those established under § 60.274(c) may be considered by the Administrator to be

unacceptable operation and maintenance of the affected facility. Operation at such values shall be reported to Administrator semiannually.

(b) When the owner or operator of an EAF is required to demonstrate compliance with the standard under §60.275 (b)(2) or a combination of (b)(1) and (b)(2), the owner or operator shall obtain approval from the Administrator of the procedure(s) that will be used to determine compliance. Notification of the procedure(s) to be used must be postmarked 30 days prior to the performance test.

(c) For the purpose of this subpart, the owner or operator shall conduct the demonstration of compliance with §60.272(a) of this subpart and furnish the Administrator a written report of the results of the test. This report shall include the following information:

- (1) Facility name and address;
- (2) Plant representative;
- (3) Make and model of process, control device, and continuous monitoring equipment;
- (4) Flow diagram of process and emission capture equipment including other equipment or process(es) ducted to the same control device;
- (5) Rated (design) capacity of process equipment;
- (6) Those data required under §60.274(i) of this subpart;
  - (i) List of charge and tap weights and materials;
  - (ii) Heat times and process log;
  - (iii) Control device operation log; and

(iv) Continuous monitor or Reference Method 9 data.

- (7) Test dates and test times;
- (8) Test company;
- (9) Test company representative;
- (10) Test observers from outside agency;
- (11) Description of test methodology used, including any deviation from standard reference methods
- (12) Schematic of sampling location;
- (13) Number of sampling points;
- (14) Description of sampling equipment;
- (15) Listing of sampling equipment calibrations and procedures;
- (16) Field and laboratory data sheets;
- (17) Description of sample recovery procedures;
- (18) Sampling equipment leak check results;
- (19) Description of quality assurance procedures;
- (20) Description of analytical procedures;
- (21) Notation of sample blank corrections; and
- (22) Sample emission calculations.

(d) The owner or operator shall maintain records of all shop opacity observations made in accordance with §60.273(d). All shop opacity observations in excess of the emission limit specified in §60.272(a)(3) of this subpart shall indicate a period of excess emission, and shall be reported to the Administrator semi-annually, according to §60.7(c).

[49 FR 43844, Oct. 31, 1984, as amended at 54 FR 6672, Feb. 14, 1989; 64 FR 10110, Mar. 2, 1999]